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Rec'd PCT/PTC 27 DEC 2004

INTERNATIONAL SEARCH REPORT

International application No.

JP03/08052

A. CLASSIFICATION OF SUBJECT MATTERInt.Cl⁷ G01N27/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ G12N27/12, G01N27/41-27/419

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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Kokai Jitsuyo Shinan Koho	1971-2003	Jitsuyo Shinan Toroku Koho	1996-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
JICST FILE (JOIS)**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 3-103760 A (NGK Spark Plug Co., Ltd.), 30 April, 1991 (30.04.91), Full text; Figs. 1 to 6 (Family: none)	1-11
A	JP 58-24850 A (Toyota Central Research And Development Laboratories, Inc.), 14 February, 1983 (14.02.83), Full text; Figs. 1 to 37 & US 4500412 A1	1-11
A	JP 58-92946 A (Nippon Soken, Inc.), 02 June, 1983 (02.06.83), Full text; Figs. 1 to 11 & US 4453397 A1	1-11

Further documents are listed in the continuation of Box C. See patent family annex.

"A"	Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier document but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
04 September, 2003 (04.09.03)Date of mailing of the international search report
24 September, 2003 (24.09.03)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 6-222026 A (Toyota Motor Corp.), 12 August, 1994 (12.08.94), Full text; Figs. 1 to 11 (Family: none)	1-11
X	JP 61-93944 A (NGK Spark Plug Co., Ltd.), 12 May, 1986 (12.05.86), Claims 1 to 5; Figs. 1 to 10 & DE 3569036 D & EP 182485 A1 & US 4958514 A1	12, 13, 17, 18
E, X	JP 2003-149189 A (National Institute of Advanced Industrial Science and Technology), 21 May, 2003 (21.05.03), Full text; Figs. 1 to 7 (Family: none)	12-18
A	JP 59-27253 A (Shinyei Kabushiki Kaisha), 13 February, 1984 (13.02.84), Full text; Figs. 1 to 8 (Family: none)	1-18
A	JP 3-267517 A (NGK Spark Plug Co., Ltd.), 28 November, 1991 (28.11.91), Full text; Figs. 1 to 8 (Family: none)	1-18
A	JP 10-505164 A (Siemens AG.), 19 May, 1998 (19.05.98), Full text; Figs. 1 to 11 & DE 59502915 C & WO 96/8712 A1 & DE 4432729 C & EP 781408 A & AT 168776 E & ES 2119467 T & US 5824271 A1 & DK 781408 T	1-11